REMARKS

Claims 1-26 are currently pending in this application, with claims 14-26 withdrawn. The Office Action rejected claims 1-13. In light of the arguments presented below, reconsideration of the rejections is respectfully requested.

Examiner Interview of April 1, 2005

Applicants thank the Examiner for graciously agreeing to the Interview of April 1, 2005. As stated in the interview summary, the definition of a fluidized bed and its location in the present invention were discussed. The transport air flow as described in Applicants' specification was also discussed. Further to such discussion, Applicants present the following remarks to highlight the differences between the present invention and the prior art.

Objections to the Specification

The Office Action objected to the title as being not descriptive. Applicants have amended the title as suggested by the Examiner. Withdrawal of the objection is respectfully requested.

Rejection under 35 U.S.C. § 112

Claim 12 was rejected under 35 U.S.C. § 112, second paragraph, as indefinite. Applicants have amended claim 12 to provided proper antecedent basis. Withdrawal of this rejection is respectfully requested.

Rejection under 35 U.S.C. § 102

The Office Action rejected Claims 1-7 and 11-13 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 3,050,427 to Slayter et al ("Slayter"). Applicants respectfully traverse this rejection.

The present claims recite, "[a] method for producing a nonwoven fiber composite . . . comprising: feeding separated fiber materials to a fluidized bed..." Slayter does not disclose a fluidized bed. The process of fluidization, as in a fluid bed, is known in the art. Hawley's Condensed Chemical Dictionary defines fluidization as "a technique in which a finely divided solid is caused to behave like a fluid by suspending it in a moving gas or liquid." Hawley's Condensed Chemical Dictionary, 13th ed. (1997). A copy of the definition is attached for the convenience of the Examiner. FIG. 2 of the present specification illustrates that separated fibers are suspended in air as the fibers move along the fluidized bed. In contrast, the apparatus of Slayter does not utilize a fluidized bed where the fibers are suspended in a moving gas. Instead, Slayter discloses fibers that are pulled downwards by gravity and by suction box 31 (Slayter, col. 4, lines 23-25).

As depicted in FIG. 2 of Applicants' invention, the fluidized bed occurs when transport air, running in a substantially horizontal direction, meets the falling fiber particles, thus suspending the fibers and transporting them along the fluidized bed. Paragraph 70 of the present specification further explains, "[t]he fiber flow leaving the separating device(s) consists of individual fibers carried along by air and/or and air flow. The appearance of the air flow carrying along fibers or fiber-loaded air flow resembles a snow storm." Thus, the fluidized bed of the present claims requires the suspension of separated fiber particles, which is consistent

with the Hawley's Dictionary definition. As Slayter bears no mention of suspension of fibers, Slayter does not disclose a fluidized bed and cannot anticipate the present invention.

Additionally, the present claims require transport "essentially by a transport air flowing in the direction of the rod forming device." Transport, as it occurs in the claimed device, is in a substantially horizontal direction. In discussing FIG. 6, paragraph 82 of Applicants' specification explains that air flow 68 consists of separator air flow 133, which moves in a vertical direction until the fluidized bed is reached. At this point, air flow is no longer vertical, and as illustrated by the figures; the air flow 68 is substantially horizontal. The horizontal movement of Slayter is achieved by conveyor, not air. The only air force present in Slayter is in a downward direction: "the deposition of the fibers and nodules of fibers is promoted by the forces of gravity and by the action of suction box 31" (Slayter, col. 4, lines 23-25). Thus. Slayter does not utilize air transport as disclosed and claimed in the present invention; transport occurs in Slayter solely by a conveyor belt. In contrast, the present invention relies on air as the primary transport vehicle ("transporting the separated filter material . . . essentially by transport air..."), rather than a mechanical means.

Slayter does not anticipate this present claim limitation of "transporting the separated filter material inside the fluidized bed . . . essentially by a transport air flow flowing in the direction of the rod-forming device" because: 1) Slayter does not disclose air moving in a horizontal direction (the direction of the rod-forming device, as illustrated by the Figures of the present specification); 2) Slayter does not disclose a fluidized bed (as discussed above); and 3) the transport means of Slayter is a conveyor belt. Since Slayter does not disclose these necessary elements of claim 1, Slayter does not anticipate the present claims.

In closing, the Applicants wish to present the following additional remarks. The present invention is directed specifically to "a method of producing a nonwoven fiber composite for the manufacture of filters in the tobacco industry." The invention of Slayter, however, speaks to a method for producing a composite foam and mineral product (Slayter, Col. 1, lines 11-12), in the form of a mat. The mats of Slayter are constructed with foamable material (see, e.g. Slayter col. 4 lines 47-48), and differ greatly from the filter rods produced by the present invention. Additionally, Slayter does not disclose the rod-forming device of the present claims. The invention of Slayter is for the production of mats, typically for insulation purposes. As Slayter does not disclose the manufacture of filters in the tobacco industry or the production of rod as required by the present claims, Slayter does not anticipate the present invention.

As Slayter does not disclose: 1) a method for producing a nonwoven fiber composite for the manufacture of **filters in the tobacco industry**; 2) feeding **separated fiber materials** to a; 3) **fluidized bed**; 4) transporting the separated material in the fluidized bed to a rod forming device essentially by a **transport air flow flowing in the direction of the rod forming device**; and compiling the filter on the 6) **rod forming device** as required by the present claims Slayter does not anticipate the present invention. Withdrawal of the rejection is respectfully requested.

Rejection under 35 U.S.C. § 103

The Office Action rejected claims 8-10 under 35 U.S.C. § 103(a) as being unpatentable over Slayter. It is believed that in light of the above arguments, claim 1 is allowable, and thus dependent claims 8-10 are also allowable. Withdrawal of this rejection is respectfully requested.

Summary

In light of the above amendments and arguments, it is submitted that claims 1-13 are allowable. Reconsideration of the rejection and the issuance of a Notice of Allowance is respectfully requested.

Respectfully submitted,

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"Flomet-Z" ***[Mallinckrodt].*** TM for a fine, white, grit-free powder containing 12.5–14.0% zinc oxide.
Use: Lubricant in powdered iron metallurgy.

flooding, chemical. See chemical flooding.

Flood reaction. Formation of trialkylsilyl halides from hexaalkyldisiloxanes using concentrated sulfuric acid in the presence of ammonium chloride or fluoride, or by treatment of the intermediate silane sulfates with hydrochloric acid in the presence of ammonium sulfate.

"Floropryl" ***[Merck].*** TM for diisopropyl fluorophosphate.

Flory, Paul J. (1910–1986). An American chemist who won the Nobel prize in 1974 for his work in polymer chemistry. He published extensive work on the physical chemistry of polymers and macromolecules. He held many medals and awards. Flory received his doctorate from Ohio State University in 1934. He was the C. J. Wood professor of chemistry at Stanford University.

flotation. A method of separating minerals from waste rock or solids of different kinds by agitating the pulverized mixture of solids with water, oil, and special chemicals that cause preferential wetting of solid particles of certain types by the oil, while other kinds are not wet. The unwetted particles are carried to the surface by the air bubbles and thus separated from the wetted particles. A frothing agent is also used to stabilize the bubbles in the form of a froth that can be easily separated from the body of the liquid (froth flotation). Do not confuse with floatation.

flow diagram. (flow sheet). A chart or line drawing used by chemical engineers to indicate successive steps in the production of a chemical, materials input and output, by-products, waste, and other relevant data.

flowers. A fine powder usually resulting from sublimation of a substance, e.g., flowers of sulfur. The term is now obsolete.

flowers of Benjamin. See benzoic acid.

flox. A mixture of liquid fluorine (30%) and liquid oxygen (70%), designed for use as a space-vehicle propellant.
Hazard: Explosively flammable.

fluid. Any material or substance that changes shape or direction uniformly in response to an external force imposed on it. The term applies not only to liquids but also gases and finely divided solids. Fluids are broadly classified as Newtonian and non-Newtonian depending on their obedience to the laws of classical mechanics.
See liquid, Newtonian; rheology; fluidization; hydraulic fluid.

fluid bed. See fluidization.

fluidization. A technique in which a finely divided solid is caused to behave like a fluid by suspending it in a moving gas or liquid. The solids so treated are frequently catalysts, hence the term *fluid catalysis*. The fluidized catalyst, e.g., alumina-silica gel, is brought into intimate contact with the suspending liquid or gas mix, usually a petroleum fraction. Local overheating of the catalyst is greatly reduced, and portions of catalyst can be easily removed for regeneration without shutting down the unit. There are also noncatalytic applications of fluidization, e.g., reduction of iron ore. Important uses of the fluidized bed process are (1) cracking of petroleum fractions, (2) gasification of coal, (3) application of organic coatings to metals (fusion bond method), (4) coal combustion, in which sulfur-bearing coal (1.33-inch diameter) is fed into a fluidized bed of limestone. Combustion occurs at 1600F, at which temperature the limestone is reduced to lime, which reacts with the sulfur in the coal to form gypsum. This technique makes possible the use of high-sulfur coal without necessity of scrubbers. The bed material is approximately 5% coal and 95% limestone products.

fluid, supercritical. See supercritical fluid.

fluoboric acid. (fluoroboric acid; hydrogen tetrafluoroborate).
CAS: 16872-11-0. HBF_4.
Properties: Colorless. Strongly acidic liquid. D approximately 1.84; bp 130C (decomposes). Miscible with water and alcohol.
Derivation: Action of boric and sulfuric acids on fluorspar.
Grade: Technical (approximately 48%), pure.
Hazard: Highly toxic, corrosive, irritant.
Use: Production of fluoborates, electrolytic brightening of aluminum, throwing power aid in electrolytic plating baths, esterification catalyst, metal cleaning, making stabilized diazo salt.

"Fluokarb" ***[Permutit].*** TM for an activated bone char.
Use: Fluoride removal.

fluometuron. (*N*-(3-trifluoromethylphenyl)-*N'*,*N'*-dimethylurea).
CAS: 2164-17-2. $C_{10}H_{11}F_3N_2O$.
Properties: Crystalline solid. Mp 163C. Partially soluble in water; soluble in alcohol and acetone.
Derivation: Reaction of dimethylamine with 3-trifluoromethylphenyl isocyanate.

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